



RECRA
LabNet

a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

RECEIVED
JAN 18 2000

0002424

EDMC

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 9908L821
SDG/SAF# : H0497/B99-078

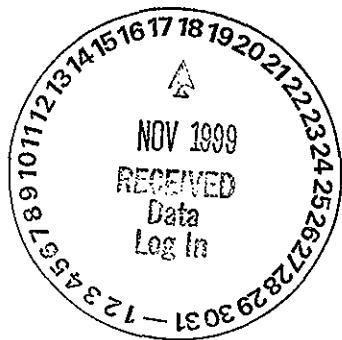
W.O.# : 10985-001-001-9999-00
Date Received: 08-20-99

REVISION

METALS CASE NARRATIVE

This package has been revised to include the addition of Antimony and Thallium.

1. This narrative covers the analyses of 7 soil samples.
2. Samples were prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. All cooler temperatures have been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

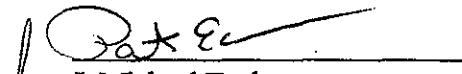


The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of pages.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at the following concentration:

<u>Sample ID</u>	<u>Element</u>	<u>PDS</u> <u>Concentration (ppb)</u>	<u>PDS</u> <u>% Recovery</u>
B0W646	Antimony	200	99.0

12. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.


J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

mld/m08-821r

11-9-09
Date



002

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this
 Recra Lot#: 9908L821

Leaching Procedure: 1310 1311 1312 Other: _____

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050A 3051 200.7 SS17
 Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Antimony	<u>✓6010B</u> <u>7041^s</u>	<u>200.7</u> <u>204.2</u>			<u>99</u>
Arsenic	<u>✓6010B</u> <u>7060A^s</u>	<u>200.7</u> <u>206.2</u>	<u>3113B</u>		<u>99</u>
Barium	<u>✓6010B</u>	<u>200.7</u>			<u>99</u>
Beryllium	<u>✓6010B</u>	<u>200.7</u>			<u>99</u>
Bismuth	<u>6010B¹</u>	<u>200.7¹</u>		<u>1620</u>	<u>99</u>
Boron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Cadmium	<u>✓6010B</u> <u>7131A^s</u>	<u>200.7</u> <u>213.2</u>			<u>99</u>
Calcium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Chromium	<u>✓6010B</u> <u>7191^s</u>	<u>200.7</u> <u>218.2</u>			<u>SS17</u>
Cobalt	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Copper	<u>✓6010B</u> <u>7211^s</u>	<u>200.7</u> <u>220.2</u>			<u>99</u>
Iron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Lead	<u>✓6010B</u> <u>7421^s</u>	<u>200.7</u> <u>239.2</u>	<u>3113B</u>		<u>99</u>
Lithium	<u>6010B</u> <u>7430⁴</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Magnesium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Manganese	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Mercury	<u>7470A³</u> <u>✓1471A³</u>	<u>245.1²</u> <u>245.5²</u>			<u>99</u>
Molybdenum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Nickel	<u>✓6010B</u>	<u>200.7</u>			<u>99</u>
Potassium	<u>6010B</u> <u>7610⁴</u>	<u>200.7</u> <u>258.1⁴</u>			<u>99</u>
Rare Earths	<u>6010B¹</u>	<u>200.7¹</u>		<u>1620</u>	<u>99</u>
Selenium	<u>✓6010B</u> <u>7740^s</u>	<u>200.7</u> <u>270.2</u>	<u>3113B</u>		<u>99</u>
Silicon	<u>6010B¹</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silica	<u>6010B</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silver	<u>✓6010B</u> <u>7761^s</u>	<u>200.7</u> <u>272.2</u>			<u>99</u>
Sodium	<u>6010B</u> <u>7770⁴</u>	<u>200.7</u> <u>273.1⁴</u>			<u>99</u>
Strontium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Thallium	<u>✓6010B</u> <u>7841^s</u>	<u>200.7</u> <u>279.2</u> <u>200.9</u>			<u>99</u>
Tin	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Titanium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Uranium	<u>6010B¹</u>	<u>200.7¹</u>		<u>1620</u>	<u>99</u>
Vanadium	<u>✓6010B</u>	<u>200.7</u>			<u>99</u>
Zinc	<u>✓6010B</u>	<u>200.7</u>			<u>99</u>
Zirconium	<u>6010B¹</u>	<u>200.7¹</u>		<u>1620</u>	<u>99</u>

Other: _____

Method: _____

003

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L821

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0W646	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	2.3	MG/KG	0.26	1.0
		Barium, Total	92.6	MG/KG	0.02	1.0
		Beryllium, Total	1.2	MG/KG	0.008	1.0
		Cadmium, Total	0.09	MG/KG	0.02	1.0
		Chromium, Total	6.4	MG/KG	0.06	1.0
		Copper, Total	12.8	MG/KG	0.1	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	8.1	MG/KG	0.1	1.0
		Lead, Total	4.2	MG/KG	0.17	1.0
		Antimony, Total	0.22	MG/KG	0.20	1.0
		Selenium, Total	0.29 u	MG/KG	0.29	1.0
		Thallium, Total	0.74	MG/KG	0.42	1.0
		Vanadium, Total	48.8	MG/KG	0.05	1.0
		Zinc, Total	45.4	MG/KG	0.06	1.0
-002	B0W647	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	1.9	MG/KG	0.36	1.0
		Barium, Total	83.6	MG/KG	0.03	1.0
		Beryllium, Total	0.41	MG/KG	0.01	1.0
		Cadmium, Total	0.09	MG/KG	0.03	1.0
		Chromium, Total	6.4	MG/KG	0.09	1.0
		Copper, Total	12.6	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	8.1	MG/KG	0.13	1.0
		Lead, Total	3.8	MG/KG	0.23	1.0
		Antimony, Total	0.27 u	MG/KG	0.27	1.0
		Selenium, Total	0.41	MG/KG	0.40	1.0
		Thallium, Total	0.62	MG/KG	0.57	1.0
		Vanadium, Total	49.0	MG/KG	0.06	1.0
		Zinc, Total	44.4	MG/KG	0.09	1.0

005

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RCRA LOT #: 9908L821

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	BOW649	Silver, Total	0.09	u MG/KG	0.09	1.0
		Arsenic, Total	2.2	MG/KG	0.30	1.0
		Barium, Total	57.2	MG/KG	0.03	1.0
		Beryllium, Total	0.34	MG/KG	0.009	1.0
		Cadmium, Total	0.05	MG/KG	0.03	1.0
		Chromium, Total	3.6	MG/KG	0.07	1.0
		Copper, Total	14.5	MG/KG	0.11	1.0
		Mercury, Total	0.01	u MG/KG	0.01	1.0
		Nickel, Total	7.4	MG/KG	0.11	1.0
		Lead, Total	3.4	MG/KG	0.19	1.0
		Antimony, Total	0.23	u MG/KG	0.23	1.0
		Selenium, Total	0.34	u MG/KG	0.34	1.0
		Thallium, Total	0.65	MG/KG	0.49	1.0
		Vanadium, Total	44.4	MG/KG	0.06	1.0
		Zinc, Total	37.1	MG/KG	0.07	1.0
-004	BOW650	Silver, Total	0.09	u MG/KG	0.09	1.0
		Arsenic, Total	2.7	MG/KG	0.29	1.0
		Barium, Total	50.9	MG/KG	0.03	1.0
		Beryllium, Total	0.36	MG/KG	0.009	1.0
		Cadmium, Total	0.07	MG/KG	0.03	1.0
		Chromium, Total	3.3	MG/KG	0.07	1.0
		Copper, Total	15.2	MG/KG	0.10	1.0
		Mercury, Total	0.01	u MG/KG	0.01	1.0
		Nickel, Total	7.3	MG/KG	0.10	1.0
		Lead, Total	3.8	MG/KG	0.18	1.0
		Antimony, Total	0.22	u MG/KG	0.22	1.0
		Selenium, Total	0.32	u MG/KG	0.32	1.0
		Thallium, Total	0.54	MG/KG	0.46	1.0
		Vanadium, Total	36.5	MG/KG	0.05	1.0
		Zinc, Total	35.3	MG/KG	0.07	1.0

006

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RCRA LOT #: 9908L821

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING		DILUTION FACTOR
					LIMIT		
-005	B0W651	Silver, Total	0.07	u	MG/KG	0.07	1.0
		Arsenic, Total	2.2		MG/KG	0.23	1.0
		Barium, Total	40.3		MG/KG	0.02	1.0
		Beryllium, Total	0.30		MG/KG	0.007	1.0
		Cadmium, Total	0.02	u	MG/KG	0.02	1.0
		Chromium, Total	3.0		MG/KG	0.06	1.0
		Copper, Total	13.6		MG/KG	0.08	1.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Nickel, Total	6.2		MG/KG	0.08	1.0
		Lead, Total	2.9		MG/KG	0.15	1.0
		Antimony, Total	0.18	u	MG/KG	0.18	1.0
		Selenium, Total	0.29		MG/KG	0.26	1.0
		Thallium, Total	0.63		MG/KG	0.37	1.0
		Vanadium, Total	34.0		MG/KG	0.04	1.0
		Zinc, Total	32.5		MG/KG	0.06	1.0
-006	B0W652	Silver, Total	0.09	u	MG/KG	0.09	1.0
		Arsenic, Total	2.0		MG/KG	0.29	1.0
		Barium, Total	41.6		MG/KG	0.03	1.0
		Beryllium, Total	0.30		MG/KG	0.009	1.0
		Cadmium, Total	0.03	u	MG/KG	0.03	1.0
		Chromium, Total	2.2		MG/KG	0.07	1.0
		Copper, Total	14.4		MG/KG	0.10	1.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Nickel, Total	6.0		MG/KG	0.10	1.0
		Lead, Total	2.8		MG/KG	0.18	1.0
		Antimony, Total	0.22	u	MG/KG	0.22	1.0
		Selenium, Total	0.46		MG/KG	0.32	1.0
		Thallium, Total	0.60		MG/KG	0.46	1.0
		Vanadium, Total	30.8		MG/KG	0.05	1.0
		Zinc, Total	32.0		MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RCRA LOT #: 9908L821

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING		DILUTION FACTOR
					LIMIT		
-007	B0W658	Silver, Total	0.09 u	MG/KG	0.09		1.0
		Arsenic, Total	1.3	MG/KG	0.28		1.0
		Barium, Total	37.8	MG/KG	0.03		1.0
		Beryllium, Total	0.25	MG/KG	0.009		1.0
		Cadmium, Total	0.03 u	MG/KG	0.03		1.0
		Chromium, Total	6.3	MG/KG	0.07		1.0
		Copper, Total	11.8	MG/KG	0.10		1.0
		Mercury, Total	0.01 u	MG/KG	0.01		1.0
		Nickel, Total	14.1	MG/KG	0.10		1.0
		Lead, Total	2.5	MG/KG	0.18		1.0
		Antimony, Total	0.21 u	MG/KG	0.21		1.0
		Selenium, Total	0.31 u	MG/KG	0.31		1.0
		Thallium, Total	0.73	MG/KG	0.45		1.0
		Vanadium, Total	27.9	MG/KG	0.05		1.0
		Zinc, Total	24.7	MG/KG	0.07		1.0

008

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/09/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9908L821

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	REPORTING			DILUTION FACTOR
			RESULT	UNITS	LIMIT	
BLANK1	99L0591-MB1	Silver, Total	0.20	MG/KG	0.10	1.0
		Arsenic, Total	0.33 u	MG/KG	0.33	1.0
		Barium, Total	0.03 u	MG/KG	0.03	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.1	MG/KG	0.08	1.0
		Copper, Total	0.12 u	MG/KG	0.12	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.25	MG/KG	0.21	1.0
		Antimony, Total	0.25 u	MG/KG	0.25	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Thallium, Total	0.53 u	MG/KG	0.53	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.12	MG/KG	0.08	1.0
BLANK1	99C0253-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9908L821

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED	INITIAL	SPIKED	%RECOV	DILUTION
			SAMPLE	RESULT	AMOUNT		FACTOR(SPK)
-001	B0W646	Silver, Total	4.7	0.08u	4.8	97.9	1.0
		Arsenic, Total	190	2.3	192	97.7	1.0
		Barium, Total	264	92.6	192	89.3	1.0
		Beryllium, Total	5.9	1.2	4.8	97.9	1.0
		Cadmium, Total	4.8	0.09	4.8	98.1	1.0
		Chromium, Total	26.1	6.4	19.2	102.6	1.0
		Copper, Total	35.1	12.8	24.1	92.5	1.0
		Mercury, Total	0.18	0.02u	0.18	101.1	1.0
		Nickel, Total	55.9	8.1	48.1	99.4	1.0
		Lead, Total	51.9	4.2	48.1	99.2	1.0
		Antimony, Total	17.9	0.22	48.1	36.7	1.0
		Selenium, Total	184	0.29u	192	95.6	1.0
		Thallium, Total	190	0.74	192	98.5	1.0
		Vanadium, Total	95.6	48.8	48.1	97.3	1.0
		Zinc, Total	91.7	45.4	48.1	96.3	1.0

010

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

RECREA LOT #: 9908L821

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	B0W646	Silver, Total	0.08u	0.09u	NC	1.0
		Arsenic, Total	2.3	2.2	4.4	1.0
		Barium, Total	92.6	88.0	5.1	1.0
		Beryllium, Total	1.2	1.2	0.00	1.0
		Cadmium, Total	0.09	0.06	47.2	1.0
		Chromium, Total	6.4	6.7	4.6	1.0
		Copper, Total	12.8	13.1	2.3	1.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Nickel, Total	8.1	9.4	14.9	1.0
		Lead, Total	4.2	4.4	4.7	1.0
		Antimony, Total	0.22	0.36	46.0	1.0
		Selenium, Total	0.29u	0.32u	NC	1.0
		Thallium, Total	0.74	0.74	0.28	1.0
		Vanadium, Total	48.8	48.6	0.41	1.0
		Zinc, Total	45.4	46.8	3.0	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/09/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RCRA LOT #: 9908L821

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	99L0591-LC1	Silver, LCS	49.4	50.0	MG/KG	98.8
		Arsenic, LCS	969	1000	MG/KG	96.9
		Barium, LCS	492	500	MG/KG	98.4
		Beryllium, LCS	24.6	25.0	MG/KG	98.4
		Cadmium, LCS	24.4	25.0	MG/KG	97.6
		Chromium, LCS	50.0	50.0	MG/KG	100
		Copper, LCS	123	125	MG/KG	98.5
		Nickel, LCS	194	200	MG/KG	96.9
		Lead, LCS	243	250	MG/KG	97.2
		Antimony, LCS	289	300	MG/KG	96.5
		Selenium, LCS	951	1000	MG/KG	95.1
		Thallium, LCS	1000	1000	MG/KG	100.4
		Vanadium, LCS	249	250	MG/KG	99.6
		Zinc, LCS	96.1	100	MG/KG	96.1
LCS1	99C0253-LC1	Mercury, LCS	0.96	1.0	MG/KG	95.8

012

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/20/99

RFW LOT # :9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION EXTR/PREP	ANALYSIS
BOW646					
SILVER, TOTAL	001	S	99L0591	08/18/99	08/26/99
SILVER, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
SILVER, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
ARSENIC, TOTAL	001	S	99L0591	08/18/99	08/26/99
ARSENIC, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
ARSENIC, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
BARIUM, TOTAL	001	S	99L0591	08/18/99	08/26/99
BARIUM, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
BARIUM, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
BERYLLIUM, TOTAL	001	S	99L0591	08/18/99	08/26/99
BERYLLIUM, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
BERYLLIUM, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
CADMIUM, TOTAL	001	S	99L0591	08/18/99	08/26/99
CADMIUM, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
CADMIUM, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
CHROMIUM, TOTAL	001	S	99L0591	08/18/99	08/26/99
CHROMIUM, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
CHROMIUM, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
COPPER, TOTAL	001	S	99L0591	08/18/99	08/26/99
COPPER, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
COPPER, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
MERCURY, TOTAL	001	S	99C0253	08/18/99	08/26/99
MERCURY, TOTAL	001 REP	S	99C0253	08/18/99	08/26/99
MERCURY, TOTAL	001 MS	S	99C0253	08/18/99	08/26/99
NICKEL, TOTAL	001	S	99L0591	08/18/99	08/26/99
NICKEL, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
NICKEL, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
LEAD, TOTAL	001	S	99L0591	08/18/99	08/26/99
LEAD, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
LEAD, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
ANTIMONY, TOTAL	001	S	99L0591	08/18/99	08/26/99
ANTIMONY, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99
ANTIMONY, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99
SELENIUM, TOTAL	001	S	99L0591	08/18/99	08/26/99
SELENIUM, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99

013

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/20/99

RFW LOT # : 9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99	08/30/99
THALLIUM, TOTAL	001	S	99L0591	08/18/99	08/26/99	08/30/99
THALLIUM, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99	08/30/99
THALLIUM, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99	08/30/99
VANADIUM, TOTAL	001	S	99L0591	08/18/99	08/26/99	08/30/99
VANADIUM, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99	08/30/99
VANADIUM, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99	08/30/99
ZINC, TOTAL	001	S	99L0591	08/18/99	08/26/99	08/30/99
ZINC, TOTAL	001 REP	S	99L0591	08/18/99	08/26/99	08/30/99
ZINC, TOTAL	001 MS	S	99L0591	08/18/99	08/26/99	08/30/99

BOW647

SILVER, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
ARSENIC, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
BARIUM, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
BERYLLIUM, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
CADMIUM, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
CHROMIUM, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
COPPER, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
MERCURY, TOTAL	002	S	99C0253	08/18/99	08/26/99	08/27/99
NICKEL, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
LEAD, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
ANTIMONY, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
SELENIUM, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
THALLIUM, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
VANADIUM, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99
ZINC, TOTAL	002	S	99L0591	08/18/99	08/26/99	08/31/99

BOW649

SILVER, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
ARSENIC, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
BARIUM, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
BERYLLIUM, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
CADMIUM, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
CHROMIUM, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
COPPER, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99

014

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/20/99

RFW LOT # :9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	003	S	99C0253	08/18/99	08/26/99	08/27/99
NICKEL, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
LEAD, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
ANTIMONY, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
SELENIUM, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
THALLIUM, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
VANADIUM, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99
ZINC, TOTAL	003	S	99L0591	08/18/99	08/26/99	08/31/99

BOW650

SILVER, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
ARSENIC, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
BARIUM, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
BERYLLIUM, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
CADMIDIUM, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
CHROMIUM, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
COPPER, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
MERCURY, TOTAL	004	S	99C0253	08/18/99	08/26/99	08/27/99
NICKEL, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
LEAD, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
ANTIMONY, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
SELENIUM, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
THALLIUM, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
VANADIUM, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99
ZINC, TOTAL	004	S	99L0591	08/18/99	08/26/99	08/31/99

BOW651

SILVER, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
ARSENIC, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
BARIUM, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
BERYLLIUM, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
CADMIDIUM, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
CHROMIUM, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
COPPER, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
MERCURY, TOTAL	005	S	99C0253	08/18/99	08/26/99	08/27/99
NICKEL, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99

015

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/20/99

RFW LOT #: 9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
ANTIMONY, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
SELENIUM, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
THALLIUM, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
VANADIUM, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
ZINC, TOTAL	005	S	99L0591	08/18/99	08/26/99	08/31/99
BOW652						
SILVER, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
ARSENIC, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
BARIUM, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
BERYLLIUM, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
CADMIUM, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
CHROMIUM, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
COPPER, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
MERCURY, TOTAL	006	S	99C0253	08/18/99	08/26/99	08/27/99
NICKEL, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
LEAD, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
ANTIMONY, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
SELENIUM, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
THALLIUM, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
VANADIUM, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
ZINC, TOTAL	006	S	99L0591	08/18/99	08/26/99	08/31/99
BOW658						
SILVER, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
ARSENIC, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
BARIUM, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
BERYLLIUM, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
CADMIUM, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
CHROMIUM, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
COPPER, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
MERCURY, TOTAL	007	S	99C0253	08/18/99	08/26/99	08/27/99
NICKEL, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
LEAD, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99
ANTIMONY, TOTAL	007	S	99L0591	08/18/99	08/26/99	08/31/99

016

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/20/99

RFW LOT #: 9908L821

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	007	S	99L0591	08/18/99	08/26/99
THALLIUM, TOTAL	007	S	99L0591	08/18/99	08/26/99
VANADIUM, TOTAL	007	S	99L0591	08/18/99	08/26/99
ZINC, TOTAL	007	S	99L0591	08/18/99	08/26/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
SILVER, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
ARSENIC LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
ARSENIC, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
BARIUM LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
BARIUM, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
BERYLLIUM, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
CADMIUM LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
CADMIUM, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
CHROMIUM LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
CHROMIUM, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
COPPER LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
COPPER, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
MERCURY LABORATORY	LC1 BS	S	99C0253	N/A	08/26/99	08/27/99
MERCURY, TOTAL	MB1	S	99C0253	N/A	08/26/99	08/27/99
NICKEL LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
NICKEL, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
LEAD LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
LEAD, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
ANTIMONY LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
ANTIMONY, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
SELENIUM LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
SELENIUM, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
THALLIUM LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
THALLIUM, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
VANADIUM LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
VANADIUM, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99
ZINC LABORATORY	LC1 BS	S	99L0591	N/A	08/26/99	08/30/99
ZINC, TOTAL	MB1	S	99L0591	N/A	08/26/99	08/30/99

017

ALLof 001
schnell (8) RECRA
wet chem

9908L821

Custody Transfer Record/Lab Work Request

Client	TNU-HANFORD	Proj #	B99-078
Est. Final Proj. Sampling Date			
Project #	10985-001-001-9999-00		
Project Contact/Phone #			
RECRA Project Manager	DJ		
QC SPEC	Del	STD	TAT 30 DAY
Date Rec'd	8/20/99	Date Due	9/19/99
Account #	TNUHANFORD		

Refrigerator #		1	6	6	6	6	6	6	6	6	6
#/Type Container	Liquid										
	Solid	19	19				19	19	1AB		108
Volume	Liquid										
	Solid	250	500	500	500	500	500	250	/mld		1tr
Preservatives											
ANALYSES REQUESTED →		ORGANIC				INORG					
		VOA	BNA	Pest PCB	Herb			Metal	CN		
↓ RECRA LabNet Use Only ↓											

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)	Matrix	Date Collected	Time Collected	0624H	0625H	OR6	ODRC	OGSC	met (1)	IPH	ICR6	NOR6
							MS	MSD							
001	BCDW646		S	8/18/99	0924	✓ ✓ ✓	✓	✓		✓	✓	✓	✓	✓	✓
2	647				0930	✓ ✓ ✓	✓	✓		✓	✓	✓	✓	✓	✓
3	649				0946	✓ ✓ ✓	✓	✓		✓	✓	✓	✓	✓	✓
4	650				1003	✓ ✓ ✓	✓	✓		✓	✓	✓	✓	✓	✓
5	651				1015	✓ ✓ ✓	✓	✓		✓	✓	✓	✓	✓	✓
6	652				1030	✓ ✓ ✓	✓	✓		✓	✓	✓	✓	✓	sample
007	658				1046	✓ ✓ ✓	✓	✓		✓	✓	✓	✓	✓	broken
COMPOSITE WASTE				001 → no bottle rec'd for metals or CRC take aliquots from other jars.											

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Saf # B99-078
11/3/99 Sb + Tl added per client

Run Matrix QC
8/26/99 added OGSC (→)
OGSC = ethanol + propanal

DATE/REVISIONS:

- 1. met (1) = As, Ba, Be, Cd, Cr, Cu, Pb,
- 2. Ni, Se, Ag, V, Zn, Hg
- 3. INORG (1) = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
- 4. ICPo4, ISFD, INH3N, ICNfD, ICSO4
- 5. K 423579528576 @ 4.1°C
- 6. K 423579528565 @ 4.3°C

RECRA LabNet Use Only

Samples were:

1) Shipped orHand Delivered Airbill #

COC Tape was:

1) Present on Outer Package or

N

2) Unbroken on Outer Package or

N

3) Present on Sample or

N

4) Labels Indicate Properly Preserved or

N

5) Received Within Holding Times or

N

COC Record Present Upon Sample Rec't or

N

Relinquished by	Received by	Date	Time
FedEx	<i>CM</i>	8/20/99	

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between
Samples Lables and
COC Record? Y or N
NOTES:

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B99-078-56	Page 1 of 1
Collector R. Nielson/D. Bowers		Company Contact Chris Cealock	Telephone No. 372-9574	Project Coordinator TRENT, SJ		Price Code 8N	Data Turnaround 45 Days	
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-4 <15' bgs	4.5'-5.5'	SAF No. B99-078				
Ice Chest No. PRC96-005		Field Logbook No. EL-1511	Method of Shipment Federal Express					
Shipped To TMA/RECRA 11 D20 8-18-99		Offsite Property No. A990221	Bill of Lading/Air Bill No. 423579528565					
						COA	B20(CW) 671C	

POSSIBLE SAMPLE HAZARDS/REMARKS 621	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None
	Type of Container	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL

SAMPLE ANALYSIS								
Sample No.	Matrix *	Sample Date	Sample Time	Method	Method	Method	Method	Method
BOW646	Soil	8-18-99	0924	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names			SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.				Matrix *
Relinquished By Doug Bowers Date/Time Doug Bowers 8-18-99/125	Received By R. Nielson	Date/Time 8-18-99/1315		(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196				Soil
Relinquished By Ref# 13 8/19/99 0900	Received By R. Nielson	Date/Time 8/19/99 0900		(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010				Water
Relinquished By FedEx Date/Time FedEx 8/19/99 1230	Received By FedEx	Date/Time 8/19/99 1230		(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241				Other Solid
Relinquished By FedEx Date/Time FedEx 8/20/99 0930	Received By BMiller	Date/Time 8/20/99 0930	Title	* Note: Material necessary for Item (1) analysis to be extracted from other sample material provided				Other Liquid
LABORATORY SECTION	Received By							Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By				Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							B99-078-57	Page 1 of 1	
Collector R. Nielson/D. Bowers		Company Contact Chris Cearlock Telephone No. 372-9574			Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days		
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-4 <15' bgs 7' - 8'			SAF No. B99-078						
Ice Chest No. EFC96-005		Field Logbook No. EL-1511			Method of Shipment Federal Express						
Shipped To TMA/RCRA 11 8/19 8-10-99		Offsite Property No. A990721			Bill of Lading/Air Bill No. 423579528565						
					COA 020 CW 671C						
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None
				Type of Container	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)	I	I	I	I	I	I	I
Special Handling and/or Storage				Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS				Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1- Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	
Sample No.	Matrix *	Sample Date	Sample Time								
B0W647	Soil	8-18-99	0930		X	X	X	X	X		B0W565
CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.					Matrix *
Relinquished By D. Bowers	Date/Time 8-18-99/1315	Received By R. C. F. J. O.	Date/Time 8-18-99/1315		(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196					Soil	
Relinquished By R. C. F. J. O.	Date/Time 8/19/99 0100	Received By R. C. F. J. O.	Date/Time 8/19/99 0100		(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010					Water	
Relinquished By R. C. F. J. O.	Date/Time 8/19/99 0100	Received By R. C. F. J. O.	Date/Time 8/19/99 0100		(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 - Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241					Vapor	
Relinquished By R. C. F. J. O.	Date/Time 8/19/99 0100	Received By R. C. F. J. O.	Date/Time 8/19/99 0100							Other Solid	
Relinquished By R. C. F. J. O.	Date/Time 8/19/99 0100	Received By R. C. F. J. O.	Date/Time 8/19/99 0100							Other Liquid	
LABORATORY SECTION		Received By FedEx	Title		*Note* If additional sample material is required for Hem(2) analysis, use material from other sample material provided.						
FINAL SAMPLE DISPOSITION		Disposal Method			Disposed By					Date/Time	

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							B99-078-58	Page 1 of 1	
Collector R. Nielson/D. Bowers		Company Contact Chris Gearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days	
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-4 <15' bgs		9.5' - 10.5'		SAF No. B99-078					
Ice Chest No. ELC96-005		Field Logbook No. EL-1511				Method of Shipment Federal Express					
Shipped To DIA/RECRA BAG 8-18-99		Offsite Property No. A990221				Bill of Lading/Air Bill No. 423579528565					
						COA B20CWJ 671C					
POSSIBLE SAMPLE HAZARDS/REMARKS			Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None	
			Type of Container	aG	aG	aG	aG	aG	aG	aG	
			No. of Container(s)	1	1	1	1	1	1	1	
Special Handling and/or Storage			Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL	
SAMPLE ANALYSIS				Isotopic Uranium	VOA - 3260A (TCL); VOA - 8260A (Add-On) {1- Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8032	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	
Sample No.	Matrix *	Sample Date	Sample Time								
BOW649	Soil	8-18-99	0946		X	X	X	X	X	Bowers 65	
CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.				Matrix *	
Relinquished By Doug Bowers Date/Time Doug Bowers 8-18-99 1315		Received By FedEx 8-18-99 1315		(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471-(CV); Chromium Hex - 7196				Soil Water Vapor Other Solid Other Liquid			
Relinquished By Kef #1B 8/19/99 0900		Received By R. Nielson 8/19/99 1400		(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010							
Relinquished By R. Nielson 8/19/99 1330		Received By FedEx		(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241							
Relinquished By FedEx		Received By B. Miller 8/20/99 0930									
LABORATORY SECTION		Title									
FINAL SAMPLE DISPOSITION		Disposed By				Date/Time					

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-078-59

Page 1 of 1

Collector R. Nielson/D. Bowers	Company Contact Chris Gearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-I OU	Sampling Location GP-4 <15' bgs	171-131	SAF No. B99-078		
Ice Chest No. ERC96-005	Field Logbook No. EL-1511	Method of Shipment Federal Express			
Shipped To TMA/RCRA 8-18-99	Offsite Property No. A9010221	Bill of Lading/Air Bill No. 423579528565			
		COA B20Cw 671C			

POSSIBLE SAMPLE HAZARDS/REMARKS Special Handling and/or Storage	Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None				
	Type of Container	aG	aG	aG	aG	aG	aG	aG				
	No. of Container(s)	1	1	1	1	1	1	1				
Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL					

SAMPLE ANALYSIS				Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1- Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time									
B0W650	Soil	8-18-99	1003			X	X	X	X	X		B0W650

CHAIN OF POSSESSION	Sign/Print Names			SPECIAL INSTRUCTIONS			Matrix *
				See chain of custody comments on SAF B99-078.			

Relinquished By D. Bowers	Date/Time 8-18-99/1215	Received By R. Nielson	Date/Time 8-18-99/1315	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196			Soil
Relinquished By REF# 1B	Date/Time 8/19/99 0900	Received By D. Nielson/R. Nielson	Date/Time 8/19/99	(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010			Water
Relinquished By R. Nielson	Date/Time 8/19/99	Received By FedEx	Date/Time	(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241			Vapor
Relinquished By FedEx	Date/Time	Received By L. Miller	Date/Time 8/20/99 0930				Other Solid
LABORATORY SECTION	Title						Other Liquid
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							B99-078-60		Page 1 of 1	
Collector R. Nielson/D. Bowers		Company Contact Chris Gearlock		Telephone No. 372-9574			Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days	
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-4 <15' bgs 14' ~ 15'					SAF No. B99-078					
Ice Chest No. SML-552		Field Logbook No. EL-1511						Method of Shipment Federal Express				
Shipped To DRA/RECRA 8-18-99		Offsite Property No. A990221						Bill of Lading/Air Bill No. 423579528576				
								COA B20Cw1671C				
POSSIBLE SAMPLE HAZARDS/REMARKS			Preservation	None	Cool 4C	None	Cool 4C	None	Cool 4C	None		
			Type of Container	aG	aG	aG	aG	aG	aG	aG		
			No. of Container(s)	1	1	1	1	1	1	1		
Special Handling and/or Storage			Volume	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL		
SAMPLE ANALYSIS				Isotopic Uranium	VOA - 8260A (TCL); VOA - 8260A (Add-On) (I- Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time									
BOW651	Soil	8-18-99	1015	X	X	X	X				Bows651	
CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.					Matrix *	
Relinquished By R. Nielson	Date/Time 8-18-99/1315	Received By R. Nielson	Date/Time 8-18-99/1117	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196 . (2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010 (3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 - Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241					Soil Water Vapor Other Solid Other Liquid			
Relinquished By R. Nielson	Date/Time 8-19-99 0900	Received By R. Nielson	Date/Time 8-19-99									
Relinquished By R. Nielson	Date/Time 8-19-99 1330	Received By Fed Ex	Date/Time									
Relinquished By FED EX	Date/Time	Received By B. Miller	Date/Time 8/20/99									
LABORATORY SECTION	Title									Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method				Disposed By					Date/Time		

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							B99-078-61		Page 1 of 1			
Collector R. Nielson/D. Bowers		Company Contact Chris Gearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days				
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-4 >15' bgs		19.5' - 20.5'		SAF No. B99-078								
Ice Chest No. <i>SML-552</i>		Field Logbook No. EL-1511				Method of Shipment Federal Express								
Shipped To TMA/RECRA <i>0x3 8-18-99</i>		Offsite Property No. <i>A990221</i>				Bill of Lading/Air Bill No. <i>42367952 8576</i>								
						COA <i>B20CW, 671C</i>								
POSSIBLE SAMPLE HAZARDS/REMARKS			Preservation	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None	
			Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
			No. of Container(s)	1	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage			Volume	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL	1000mL	
				Isotopic Uranium	Nickel-63	Techneium-99	Tritium - H3	VOA - \$260A (TCL); VOA - \$260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	
SAMPLE ANALYSIS														
Sample No.	Matrix *	Sample Date	Sample Time											
BOW652	Soil	<i>8-18-99</i>	<i>1030</i>					X	X	X	X	<i>Bowers</i>		
CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.						Matrix *		
Relinquished By <i>Davey Bowers</i>	Date/Time <i>8-18-99/1315</i>	Received By <i>R. B. B.</i>	Date/Time <i>8-18-99/1315</i>	(1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196						Soil				
Relinquished By <i>Jeff B 8/18/99 0900</i>	Date/Time	Received By <i>R. Nielson/R. Nielson</i>	Date/Time <i>8/18/99 0900</i>	(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010						Water				
Relinquished By <i>R. Nielson/R. Nielson 8/19/99</i>	Date/Time <i>1230</i>	Received By <i>FedEx</i>	Date/Time	(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241						Vapor				
Relinquished By <i>FedEx</i>	Date/Time	Received By <i>BN Miller</i>	Date/Time <i>8/20/99</i>							Other Solid				
LABORATORY SECTION	Received By										Date/Time			
FINAL SAMPLE DISPOSITION	Disposal Method				Disposed By						Date/Time			

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-078-62

Page 1 of 1

Collector R. Nielson/D. Bowers	Company Contact Chris Gearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days		
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-4 >15' bgs	24' - 25'	SAF No. B99-078				
Ice Chest No. <i>SML-552</i>	Field Logbook No. EL-1511	Method of Shipment Federal Express					
Shipped To TMA/RECRA <i>8-18-99</i>	Offsite Property No. <i>A990221</i>	Bill of Lading/Air Bill No. <i>423579528576</i>					
					COA <i>B20 CW1 671C</i>		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage	Volume	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL	1000mL

SAMPLE ANALYSIS													
Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Nickel-63	Techneium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) [I- Propanol, Ethanol]	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8062	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.
B0W658	Soil	<i>8-18-99</i>	<i>1046</i>						X	X	X	X	X
													<i>Bowers</i>

CHAIN OF POSSESSION	Sign/Print Names			SPECIAL INSTRUCTIONS	Matrix *
Relinquished By <i>Dong Bowers</i> Date/Time <i>8-18-99 1315</i>	Received By <i>R. f. 10</i>	Date/Time <i>8-18-99 1315</i>		See chain of custody comments on SAF B99-078.	Soil Water Vapor Other Solid Other Liquid
Relinquished By <i>R. f. 10</i> Date/Time <i>8-19-99 0900</i>	Received By <i>R. Nielson</i>	Date/Time <i>8-19-99 0900</i>		(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196	
Relinquished By <i>R. Nielson</i> Date/Time <i>8-19-99</i>	Received By <i>Field Ex</i>	Date/Time		(2) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010	
Relinquished By <i>Field Ex</i> Date/Time	Received By <i>B. Muller</i>	Date/Time <i>8/20/99 0930</i>	Title	(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241	

LABORATORY SECTION	Received By	Date/Time
FINAL SAMPLE DISPOSITION	Disposed Method	Date/Time

025